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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/511,199	10/12/2004	Yoichi Izumi	43888-341	8650
20277 7590 10/14/2010 MCDERMOTT WILL & EMERY LLP 600 13TH STREET, N.W. WASHINGTON, DC 20005-3096			EXAMINER ECHELMEYER, ALIX ELIZABETH	
			ART UNIT 1729	PAPER NUMBER
			MAIL DATE 10/14/2010	DELIVERY MODE PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

### Office Action Summary

**Application No.**

10/511,199

**Applicant(s)**

IZUMI ET AL.

**Examiner**

Alix Elizabeth Echelmeyer

**Art Unit**

1795

**Period for Reply** -- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 03 March 2010.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-5, 8, 9, 12, 14 and 17-19 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-5, 8, 9, 12, 14 and 17-19 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO/SB06)  
Paper No(s)/Mail Date 12/28/09
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: \_\_\_\_\_

### **DETAILED ACTION**

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on March 3, 2010 has been entered.
2. Claims 1, 12, and 17 are amended. Claims 13 and 15 are cancelled; claims 6, 7, 10, 11, and 16 were previously cancelled. Claims 18 and 19 are added. Claims 1-5, 8, 9, 12, 14, and 17-19 are pending and are rejected for the reasons given below.

### ***Information Disclosure Statement***

3. The information disclosure statement filed December 28, 2009 fails to comply with 37 CFR 1.98(a)(3) because it does not include a concise explanation of the relevance, as it is presently understood by the individual designated in 37 CFR 1.56(c) most knowledgeable about the content of the information, of each patent listed that is not in the English language, specifically the Japanese Office Action. It has been placed in the application file, but the information referred to therein has not been considered.

### ***Claim Interpretation***

4. The product-by-process limitations of claims 1, 13, 15, and 17 are not given patentable weight since the courts have held that patentability is based on a product itself, even if the prior art product is made by a different process (see In re Thorpe, 227 USPQ 964, (CAFC 1985), In re Brown, 173 USPQ 685 (CCPA 1972), and In re Marosi, 218 USPQ 289, 292-293 (CAFC 1983)).

In this case, the structure of the sheet before it was formed or the method by which it was formed is not found to be pertinent to the final structure.

***Claim Rejections - 35 USC § 103***

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. Claims 1-5, 8, 9, 12, 14, and 17-19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kilb et al. (US 2001/0016282) in view of Yanagihara et al. ('250) (US Patent 5,543,250) and Yanagihara et al. ('208) (JP 07-335208).

Regarding claims 1 and 17-19, Kilb et al. teach a sealed alkaline nickel/metal hydride storage battery (abstract). The battery is contained in a case having a cup-shaped bottom with a plate that is sealed to the top, as well as electrodes and a separator ([0002]). Since the battery is alkaline, and an electrolyte is necessary for the battery to function, the battery of Kilb et al. would inherently have an alkaline electrolyte.

The pores of the supports would inherently be in communication with each and with the gas transfer path, since the metallic region of the positive electrode is free of active material on the side bearing against the cell ([0006]). Since the porous support allows for the active material to be impregnated, where the active material is not impregnated it would inherently allow for communication between the pores.

Additionally, both electrodes of Kilb et al. contain a conductive support framework made of a porous metal ([0006]).

Kilb et al. teach that recesses in the electrode adjacent the bottom of the case to ensure proper gas exchange ([0022]).

As for claim 2, Kilb et al. teach the battery of the instant invention but fail to teach the surface area of the gas transfer path covering the inner face of the bottom of the case or the sealing plate. It would have been obvious to one having ordinary skill in the art at the time the invention was made to determine the most effective surface area of gas transfer since it is important to ensure proper gas exchange in order to prevent trapping of gases and failure of the battery. It has been held that discovering an optimum value of a result effective variable involves only routine skill in the art. MPEP 2144.05 (IIB).

As for claim 5, Kilb et al. teach that the negative electrode is made of a hydrogen storage alloy impregnated into a foam framework ([0016]-[0017]).

Regarding claim 9, Kilb et al. teach that recesses in the outer side of an electrode should be 5-15% of the electrode thickness ([0022]).

As for claims 1 and 17-19, the support of the electrode is embedded in both the negative and positive electrodes ([0006]).

Kilb et al. fail to teach that the support is punched metal, or contains protrusions.

Yanagihara et al. ('250) teach an electrode for a storage battery having punched holes with burrs on their peripheries (abstract, Figure 3).

With regard to claims 1 and 17, Yanagihara et al. ('250) teach that the length of the tip ends is 10% or more of the thickness of the current collector plate including the protrusions (column 5 lines 1-25).

Regarding claims 3, 4, 8, 18, and 19, Yanagihara et al. ('250) teach that the thickness of the sheet after it is punched is 37.5  $\mu\text{m}$  to 150  $\mu\text{m}$  (column 4 lines 47-49; column 3 line 1). With regard to claim 19, it has been held that when the difference between a claimed invention and the prior art is the range or value of a particular variable, then a prima facie rejection is properly established when the difference in the range or value is minor. Titanium Metals Corp. of Am. v. Banner, 778 F.2d 775, 783, 227 USPQ 773, 779 (Fed. Cir. 1985).

As for claims 1, 12 and 17-19, Yanagihara et al. ('250) teach a plurality of protrusions in the sheet protruding from either side of the sheet (Figure 3).

Regarding claim 14, Yanagihara et al. ('250) teach that a plate having center to center distance between holes of 3.5 mm was previously used, but the punched plate of Yanagihara et al. is better. Still, the pore diameter of 2 mm in the former plate and the

plate of Yanagihara et al. is the same, so it would be obvious to make the center to center distance the same to use the plate in the same function (column 4 lines 57-58).

Yanagihara et al. ('250) further teach that the punched plates provide improved adhesion between the plate and the electrode, creating better electrical conductivity (column 2 lines 20-25). Additionally, the three dimensional thickness of the plate improves the utilization of the active material, creating a higher capacity electrode, preventing voltage drops over large current discharge, and improving cycle life (column 3 lines 25-32).

It would be advantageous to use the punched plates of Yanagihara et al. ('250) in the battery of Kilb et al. in order to improve adhesion between the plate and the electrode, create better electrical conductivity, improve the utilization of the active material, create a higher capacity electrode, prevent voltage drops over large current discharge, and improve cycle life.

Therefore it would have been obvious to one having ordinary skill in the art at the time the invention was made to use the punched plates of Yanagihara et al. ('250) in the battery of Kilb et al. in order to improve adhesion between the plate and the electrode, create better electrical conductivity, improve the utilization of the active material, create a higher capacity electrode, prevent voltage drops over large current discharge, and improve cycle life.

With further regard to claims 1 and 17-19, Kilb et al. in view of Yanagihara et al. ('250) fail to teach that the current collector plate is corrugated in addition to have a plurality of pores and protrusions.

Yanagihara et al. ('208) teach a current collector plate that is both bored (or having pores) and corrugated, which prevents exfoliation of the applied active material (abstract).

It would have been obvious to the skilled artisan at the time of the invention to provide corrugations in the plate of Kilb et al. in view of Yanagihara et al. ('250) such as taught by Yanagihara et al. ('208) in order to prevent exfoliation of the active material.

The structure of the sheet before it was formed does is not considered pertinent since the final structure of the instant application and the final structure of Kilb et al. in view of Yanagihara et al. ('250) and Yanagihara et al. (,208) are the same (Figure 3 of Yanagihara et al. '250). The plate of Yanagihara et al. ('250) has several punched holes (Figure 3).

### ***Response to Arguments***

7. Applicant's arguments with respect to claims 1-5, 8, 9, 12, 14, and 17-19 have been considered but are moot in view of the new ground(s) of rejection, see above.



***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Alix Elizabeth Echelmeyer whose telephone number is (571)272-1101. The examiner can normally be reached on Mon-Fri 9-5:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Ula Ruddock can be reached on 571-272-1481. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Ula C Ruddock/  
Supervisory Patent Examiner, Art Unit 1795

Alix Elizabeth Echelmeyer  
Examiner  
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